of the individual to the race? All the data at our command conspire to prove that civilization has had little or no influence upon size, form or structure of the brain. It is true that Europeans have slightly larger brains than savages, but races exist in which the brain is large and still no progress toward civilization has been made. Disappointing as this may appear to civilized conceit, a plausible explanation for the fact lies near at hand. A savage is obliged to meet all the requirements of his life by his own efforts and his own ingenuity. By mutual interdependence and coöperation, civilized society is enabled to accomplish much more, with possibly no greater stress upon the individual. Conditions of life in a civilized community are more favorable to acquisition of knowledge; "but wisdom, as heretofore, continues to linger, and still to occupy its place as the rare performance of a balanced brain."

The best service of the author remains to be noted, viz., that of clearing the rubbish off the field, of drawing sharply the line between fact and hypothesis. Upon nearly every page he is enabled to tell us thus far our knowledge reaches, and no farther. To carry it further we must look to future observation and experiment. This is a great service indeed.

Ueber die sogenaanten Granula der Nervenzellen. FRANZ NISSL. Neurologisches Centralblatt, 1894, pp. 676-85, 781-89, 810-14.

Ueber die Nomenklatur in der Nervenzellenanatomie und ihre nächsten Ziele. FRANZ NISSL. *Ibid.*, 1895, pp. 66-75 and 104-110.

Mittheilung zur Anatomie der Nervenzellen. FRANZ NISSL. Zeitschrift für Psychiatrie, Bd. L, p. 370.

As the result of a long and patient series of investigations upon the minute structure of the nerve cell under various conditions, we have had occasion to thank the author for the perfection, at least, of two important methods for staining the nerve cell. His magenta method for staining cortex, after hardening in alcohol, gave results of great elegance, and is still useful. It has, however, been superceded by his methyl blue staining for all cases where precise granular staining is desired. This method rests primarily on the discovery of Ehrlich that methyl blue has a selective action on nerve tissue. Under Nissl's further direction it has been possible, by the aid of this selective action, to stain portions of the nerve cell protoplasm in a manner characteristic of different types. Thus, his end result is a classification of nerve cells chiefly by the granulation of their protoplasm. More exactly stated—since Nissl would have us do away altogether with the indefinite word, "granule," — substances which have a special affinity for the stain are deposited in a characteristic manner in different parts of the cell protoplasm and in the nucleus. Thus, according to the condition of the staining, whether dense, light or medium, a cell is said to be in a "pyknomorphic," "apyknomorphic," or "parapyknomorphic" condition. Instead of classifying cells by the number or character of their processes, as has been quite generally done, Nissl would classify them by the characters of staining of nucleus and protoplasm. His classification, as far as we have it, may be briefly given as follows: 1. Cytochrome cells, nucleus not larger than that of a leucocyte and cell-body scarcely discernible, found in granular layer of cerebellar cortex and elsewhere. 2. Karyochrome cells, with nucleus larger than that of glia cells, but only traces of cell-body. Typical examples are found in the cells of the substantia gelatinosa of the spinal cord. 3. Somatochrome cells, constituting the great majority of nerve cells, are characterized by a cell-body of definite contour, which completely envelopes the nu-

cleus. According to structure, these fall into four main groups: (a) arkyochrome cells, in which the stained portions take the form of a network; (b) stichochrome cells, stained matter in rather straight stripes or rows; (c) arkyostychochrome cells, in which both network and stripes are present; (d) gryochrome cells, in which the stained material takes the form throughout of small granules. Figures of all but the latter form of cell may be found under the first reference cited.

On Some of the Newer Aspects of the Pathology of Insanity. W. LLOYD ANDRIEZEN. Brain, 1894, Part LXVIII, pp. 549-692.

The idea underlying this paper seems to be the practical laboratory demonstration of the often repeated thesis that for every psychic fact there is a concomitant physical equivalent. In making his demonstrations, the author follows out the physical details much farther than any other writer with whom I am familiar. The aim of the writer being to present a picture in detail of the deviations from normal to be discerned in the brains of the insane, the background upon which he draws must be naturally the normal organization of the nervous system. This presentation of the normal side occupies about two-thirds of the paper. To illustrate the character of the changes found in the insane brain, the author chooses alcoholic insanity as a type with clear causation, ascertainable beginning and duration, and a type of which abundant clinical material may be obtained. The whole discussion is minutely divided under some seventy headings, and possibly a better idea of its general scope could not be given than by naming over a few of the most important topics in the order in which they are treated. First comes a discussion of older views. Then follows a section on comparative neurology, the cortex and cortical lamination, its different classes and systems of cells, its regional differences, its type in the amphibian. reptilian and mammalian brain, functions of the different cells and layers as revealed by their forms and relations of their component cells, and as indicated by stimulation experiments, and by the phenomena of the epilepsies,—Jacksonian and psychical. From these heads we gather evidence which is taken by Andriezen to indicate that the "ambiguous" cells of the second layer and the long pyramids of the third layer are the cells first to receive incoming impressions, hence the primary sensory cells of the cortex, and that the lower layer of polymorphic cells, last to develop and most fully developed in the human brain, are associational in function. Following with "quantitive" and "qualitive" evolution of cortical elements, their "physiological elaboration," "education," "language," and "mental evolution," the author outlines very clearly the "law of psychogenesis." This is the usual conception that as more and more nerve cells (Andriezen uses the term "neuron" in the sense of Schäfer's preferable English equivalent, nerve cell) are developed in the sensory motor arc, psychic activities rise to higher and higher complexity. Even in a frog's spinal cord, this approaches a point where it has proved difficult to say whether the action is purposeful or purely mechanical. The cortex, according to Andriezen, is an enormously complex growth of "neurons" in connection with the olfactory, optic, and fillet radiations. His scheme is, therefore, the one usually adopted in neurology, with the function confidently asserted for a good many structures about which most other authors remain in doubt. For example, Andriezen treats as an established fact the theory that the dendrons are the receiving poles of the cells, and this becomes a point fundamental to his pathological findings, as we shall see